cont A2

the can from the surface of said bottom wall so as to have an internal pressure inspection aptitude for detecting internal pressure by measuring a vibration frequency of the bottom wall generated by striking a vicinity of a central portion of the bottom wall by an electromagnetic pulse.

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12. (Amended) The can according to claim 10, wherein a diameter of a flat portion of the bottom is 60% to 90% with respect to said groove diameter.

13. (Amended) The can according to claim 10 or 12, wherein an angle of inclination of said internal rising wall is 65° to 110°.

14. (Amended) The can according to claim 10 or 12, wherein said annular bead has a gradually inclined portion continuous to the bottom wall from the top thereof.

REMARKS

Claims 1, 2, 5-10 and 12-15 are pending in the application. By this Amendment, claims 1, 10 and 12-14 are amended.

The Office Action Summary indicates that only claims 1, 2, 5-10 and 13-15 are pending in the application. Applicants believe the United States Patent and Trademark Office has mistakenly ignored claim 12. As shown in the detailed action, claim 12 is rejected under 35 U.S.C. §112 second paragraph as well as under 35 U.S.C. §103(a). This Amendment includes claim 12.

Claims 10 and 12-15 are rejected under 35 U.S.C. §112 second paragraph. Claim 10 is amended to obviate the rejection. Withdrawal of the rejection is respectively requested.

Claims 1, 2 and 5-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morita (JP 55023951) in view of Yamamoto et al. (JP 01252274), Lyu (U.S. Patent No. 3,905,507), MacPherson (U.S. Patent No. 4,402,419) and Yamaguchi (U.S. Patent No. 4,431,112). The rejection is respectfully traversed.

Claim 1 is directed to a low positive pressure canned food having an internal pressure inspection aptitude in which contents are filled and sealed in a seamless can having a body and a bottom thereof molded integrally so that can internal pressure assumes at least a low positive pressure state with respect to the outside atmospheric pressure. Claim 1 recites that the can internal pressure is in a range of from 0.2 to 0.8 kgf/cm^2 at room temperature and the bottom of the seamless can has an annular groove portion of which a groove diameter is 70 to 90% of that of the can in a vicinity of an outer peripheral portion. Claim 1 also recites that an outside of the annular groove portion constitutes an external rising wall that includes a first inclined portion inclined rising outwardly of the can and a second inclined portion inclined externally to be larger than the first inclined portion, and a top of the external rising wall is connected to a lower end of a body wall. Also, claim 1 recites that an inside of the annular groove portion constitutes an internal rising wall which rises inwardly of the can and has a flat configuration as viewed in cross-section with the internal rising wall being internally formed with a bottom wall having a substantially flat shape and a height of 0.5 to 6 mm from a groove surface. Claim 1 further recites that a bottom of the internal rising wall of the annular groove portion is formed with an annular bead having a depth of 0.1 to 4 mm inwardly of the can from the surface of the bottom wall so as to have an internal pressure inspection aptitude for detecting internal pressure by measuring a vibration frequency of the bottom wall generated by striking a vicinity of a central portion of the bottom wall by an electromagnetic pulse.

For internal pressure inspection of canned food, the tap test is high in measurement-resolving power as compared with other internal pressure inspection methods, and is able to make precise measurements. The tap test is an internal pressure inspection method in which a can lid or a can bottom of canned food is hit or struck by an electromagnetic pulse to generate vibrations, and the vibration frequency is measured to thereby inspect can internal pressure by mutual relation between the can internal pressure and the vibration frequency. However, the inspection of can internal pressure according to conventional tap tests can be applied merely in case of

negative pressure canned food in which can internal pressure is lower than atmospheric pressure, and cannot be applied to positive pressure canned food. The reason is that accurate measurement of the tap test can be achieved in case that a differential pressure between the atmospheric pressure and the an internal pressure is about 0.2 to 0.8 kgf/cm^2, and can shape is such that a change of natural frequency of a can bottom with respect to internal pressure variation is large, therefore, conventional positive pressure canned food has not been fulfilled with such conditions as described. Accordingly, when the tap test is applied to the conventional internal pressure inspection of positive pressure canned food, many errors occur, and in the tap test, accurate internal pressure measurement cannot be made.

Contrary to the prior art, the claimed invention provides positive pressure canned food and the can body to which internal pressure inspection according to a tap test can be applied. This enables accurate measurement of fine internal pressure variation of positive pressure canned food. None of the applied art describes positive pressure canned food and the can body to which internal pressure inspection according to the tap test is applied.

Morita and Yamamoto merely describe canned food in which internal pressure of 0.3-0.7 kgf/cm^2 or 0.6-1.8 kgf/cm^2 is generated in an aluminum can by nitrogen gas, and nothing is described about the can shape. Moreover, from the viewpoint of Morita "nitrogen gas is filled under atmospheric pressure of 1.7 of internal pressure to roll a lid, and after rolling, the aluminum canned food is heated and sterilized from outside by vapor. At the time of the heating and sterilization, the aluminum canned food showed no deformation caused by internal pressure of nitrogen gas." (column 4, lines 15-19). The can bottom of Morita is constituted to have high rigidity such as a dome shape which is not deformed, and there is no inspecting aptitude even if internal pressure of canned food is low. Further, Yamamoto cannot be applied to internal pressure of not more than 0.6 kgf/cm^2, and therefore, cannot be substantially applied to the internal pressure inspection according to the tap test.

Lyu, MacPherson and Yamaguchi respectively disclose shapes of a can bottom

portion, any of which are for "a container adapted to packing carbonated beverages" or a normal positive pressure container, and provide a can bottom shape with respect to deformation of such a buckling of a can bottom of canned food which is high in internal pressure, but are not intended for application of internal pressure inspection according to the tap test manner. Accordingly, Lyu, MacPherson and Yamaguchi teach, as means for accurately measuring internal pressure of low positive pressure canned food of 0.2-0.8 kgf/cm^2, nothing about employment of "vibration frequency of a bottom wall generated by hitting a central portion of the bottom wall is measured to thereby detect internal pressure", and what shape should be employed for a can shape for enabling employment of the tap test.

Further, also with respect to the specific can shape, claim 1 of the invention recites that "the outside of the annular groove portion constitutes an external rising wall comprising a first inclined portion inclined rising outwardly of the can and a second inclined portion inclined externally to be larger than the first inclined portion, and the top of the external rising wall is connected to the lower end of the body wall". However, in Lyu, the external rising wall is circular and connected to the lower end of the cylindrical side wall. In Yamaguchi, the annular groove portion is directly connected to the lower end of the cylindrical side wall. Further, in MacPherson, there is no annular groove portion, and the flat bottom wall is connected directly to the lower end of the cylindrical side wall. Accordingly, none of the applied art describes the above-described constitution of the claimed invention.

In the claimed invention, the outside shape of the annular groove portion is made to be shaped as described above whereby an area of the flat portion of the can bottom with respect to the can body diameter can be reduced, the first inclined portion of the external rising wall continuous from the annular groove bottom can be made sharp, and the vibration responsiveness of the flat portion of the can bottom is improved to enable to obtain a can body excellent in inspection aptitute.

Furthermore, the point that the U.S. Patent and Trademark Office makes regarding claim 2 is a misconception of fact, and Applicants disagree with this point.

The part "a safety range of 0.2-0.5 kgf/sq cm" described in Example 5 of Yamaguchi indicates a pressurizing portion of safety pressure to be an uneven range at the maximum temperature, and the can in Example 5 is filled with of 3.0 G.V.

Based on the foregoing, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 1. As a result, one of ordinary skill in the art would not be motivated to combine the features of the applied art because the combination of the features in the applied art would not result in the claimed invention. Therefore, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2 and 5-9 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reasons the independent claim is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 10, 12 -15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lyu in view of McPherson and Yamaguchi. The rejection is respectfully traversed.

Claim 10 is directed to a can for low positive pressure canned food having an internal pressure inspection aptitude in which contents are filled and sealed so that can internal pressure assumes at least a low positive pressure state in a range of 0.2 kgf/cm^2 and 0.8 kgf/cm^2 at room temperature and with respect to an outside atmospheric pressure. Claim 10 recites that a body and a bottom are seamlessly molded integrally, the bottom has an annular groove portion of which a groove diameter is 70 to 90% of that of the body in a vicinity of an outer peripheral portion and an outside of the annular groove portion constitutes an external rising wall. Claim 10 also recites that the external rising wall includes a first inclined portion inclined rising outwardly of the can and a second inclined portion inclined externally to be larger than the first inclined portion, and a top of the external rising wall is connected to a lower end of a body wall. Claim 10 further recites that an inside of the annular groove portion constitutes an internal rising wall which rises inwardly of the can and has a flat configuration as viewed in cross-section with the internal rising wall being internally

formed with a bottom wall having a substantially flat shape and a height of 0.5 to 6 mm from a groove surface. Additionally, claim 10 recites that a bottom of the internal rising wall of the annular groove portion is formed to be projected with an annular bead having a depth of 0.1 to 4 mm inwardly of the can from the surface of the bottom wall so as to have an internal pressure inspection aptitude for detecting internal pressure by measuring a vibration frequency of the bottom wall generated by striking a vicinity of a central portion of the bottom wall by an electromagnetic pulse.

In the remarks mentioned above, claim 10 includes identical features as in claim 1. As a result, the arguments mentioned above apply to claim 10. Thus, none of the applied art, alone or in combination, teaches or suggests the features of claim 10. As a result, one of ordinary skill in the art would not be motivate to combine the features of the applied art because the combination of the applied art would not result in the claimed invention. Therefore, it is respectfully submitted that claim 10 is allowable over the applied art.

Claims 12-15 depend from claim 10 and include all of the features of claim 10. Thus, the dependent claims are allowable at least for the reasons the independent claim is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

Date: May 14, 2002

By: Carl Schaukowitch
Reg. No. 29,211

RADER, FISHMAN & GRAUER PLLC
1233 20th Street, N.W. Suite 501
Washington, D.C. 20036
Tel: (202) 955-3750
Fax: (202) 955-3751
Customer No. 23353

Enclosure(s): Marked-Up Version of Amended Claims
Petition for Extension of Time (one month)

DC088959

MARKED-UP VERSION OF AMENDED CLAIMS

1. (Amended) A low positive pressure canned food having an internal pressure inspection aptitude in which contents are filled and sealed in ~~the~~ a seamless can having ~~the~~ a body and a bottom thereof molded integrally so that can internal pressure assumes at least a low positive pressure state with respect to the outside atmospheric pressure, characterized in that the can internal pressure is in a range of from 0.2 to 0.8 kgf/cm^2 at room temperature, the bottom of said seamless can has an annular ~~ground groove~~ portion of which a ~~ground groove~~ diameter is 70 to 90% of that of the can in ~~the~~ a vicinity of an outer peripheral portion, an outside of the annular ground portion constitutes an external rising wall including a first inclined portion inclined rising outwardly of the can and a second inclined portion inclined externally to be larger than the first inclined portion, and a top of the external rising wall is connected to a lower end of a body wall, ~~the~~ an inside of said annular ~~ground groove~~ portion constitutes an internal rising wall which rises inwardly of the can and has a flat configuration as viewed in cross-section, said internal rising wall being internally formed with a bottom wall having a substantially flat shape and a height of 0.5 to 6 mm from ~~the~~ a ~~ground grove~~ surface, and ~~the~~ a bottom of the internal rising wall of said annular ~~ground groove~~ portion is formed with an annular bead having a depth of 0.1 to 4 mm inwardly of the can from the surface of said bottom wall so as to have an internal pressure inspection aptitude for detecting internal pressure by measuring a vibration frequency of the bottom wall generated by striking a vicinity of a central portion of the bottom wall by an electromagnetic pulse.

10. (Amended) A can for low positive pressure canned food having an internal pressure inspection aptitude in which contents are filled and sealed so that can internal pressure assumes at least a low positive pressure state in a range of 0.2 kgf/cm^2 and 0.8 kgf/cm^2 at room temperature and with respect to ~~the~~ an outside atmospheric pressure, characterized in that ~~the~~ a body and a bottom are seamlessly

molded integrally, said bottom has an annular ~~ground~~ groove portion ~~(3, 11, 21, 26, 31)~~ of which ~~ground~~ groove diameter is 70 to 90% of that of the body in ~~the~~ a vicinity of an outer peripheral portion, an outside of the annular ground portion constitutes an external rising wall including a first inclined portion inclined rising outwardly of the can and a second inclined portion inclined externally to be larger than the first inclined portion, and a top of the external rising wall is connected to a lower end of a body wall, ~~the~~ an inside of said annular ~~ground~~ groove portion constitutes an internal rising wall ~~(4, 12, 22)~~ which rises inwardly of the can and has a flat configuration as viewed in cross-section, said internal rising wall being internally formed with a bottom wall ~~(6, 14, 27, 34)~~ having a substantially flat shape and a height of 0.5 to 6 mm from ~~the~~ a ~~ground~~ groove surface, and ~~the~~ a bottom of the internal rising wall ~~(4, 12, 22)~~ of said annular ~~ground~~ groove portion is formed to be projected with an annular bead ~~(5, 13, 16, 23, 32)~~ having a depth of 0.1 to 4 mm inwardly of the can from the surface of said bottom wall so as to have an internal pressure inspection aptitude for detecting internal pressure by measuring a vibration frequency of the bottom wall generated by striking a vicinity of a central portion of the bottom wall by an electromagnetic pulse.

12. (Amended) The can according to claim 10, wherein a diameter of a flat ~~potion~~ portion of the bottom is 60% to 90% with respect to said ~~ground~~ groove diameter.

13. (Amended) The can according to claim 10 or 12, wherein an angle of inclination of said internal rising wall ~~(4, 12, 22)~~ is 65° to 110°.

14. (Amended) The can according to claim 10 or 12, wherein said annular bead ~~(5, 13, 16, 23, 32)~~ has a gradually inclined portion continuous to the bottom wall from the top thereof.